

**IN THE CLAIMS:**

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A system for treating plants containing biopolymers, comprising:  
one or more repellant chemicals; and  
one or more polymers, the polymers forming a matrix with the biopolymers and the repellant chemicals to permit sustained release of the chemicals, and  
a silver ion forming an ionic complex with the matrix.
2. (currently amended) The system of claim 1, wherein the one or more repellant chemicals comprise at least one of synthetic organic, inorganic, biochemical, pharmacological and toxicological substances.
3. (currently amended) The system of claim 2, wherein at least one of the one or more repellant chemicals ~~are~~ is derived from marine life, insect life, mammalian tissues, cellular life forms, ~~and~~ or artificial and natural life forms.
4. (currently amended) The system of claim 1, wherein the one or more repellant chemicals comprise at least one plant-derived ~~materials~~ material.
5. (currently amended) The system of claim 1, wherein the one or more repellant chemicals ~~is~~ are in the form of a powder and the one or more polymers ~~is~~ are in the form of a liquid.
6. (original) The system of claim 1, wherein the one or more polymers comprise naturally occurring hydrophilic polymers.
7. (currently amended) The system of claim 6, wherein the hydrophilic polymers comprise at least one of ~~are selected from the group consisting of~~ collagen, gelatin, dextrin and polypeptides.
- 8-9. (canceled)

10. (original)The system of claim 1, wherein the one or more polymers comprise synthetic polymers.

11. (currently amended)The system of claim 10, wherein the synthetic polymers ~~are selected from the group consisting of~~ comprise at least one of self-assembled monolayers and a water insoluble amphiphilic polycation ~~molecule~~ molecules.

12. (currently amended)The system of claim 1, wherein the one or more polymers comprise one or more natural, water-soluble polymers ~~and~~ or resins selected from the group consisting of gums, guar gums, xanthan gums, starches, dextrans, proteins, celluloses, polysaccharides, dextrans, carrageenan, agar, alginates, gelatin, casein, pectin, soy bean, lignites, tannins, deoxyribonucleic acid and animal derivatives.

13. (original)The system of claim 1, wherein the one or more polymers comprise one or more synthetic, water-soluble polymers selected from the group consisting of polyvinyl alcohol, hydroxypropyl cellulose, maleic anhydride copolymers, polyacrylates, polyimines, polyethylene glycols, polyvinyl pyrrolidone, hydroxyethyl cellulose, hydroxypropylmethylcellulose, cellulose ethers, polyquaternary amines, modified polyesters, sodium carboxymethyl cellulose, hydrogels, acrylamide co-polymers, sorbitan esters and derivatives, polymeric surfactants, hydrocolloids, cationic polymers, anionic/nonionic polymers, and coagulating agents.

14. (currently amended)The system of claim 1, wherein the one or more polymers ~~are~~ comprise a bioerodible polymers.

15. (currently amended)The system of claim 1, wherein the one or more polymers ~~are~~ comprise an absorbable polymers.

16. (currently amended)The system of claim 1, wherein the one or more polymers ~~are~~ comprise a controlled release polymers.

17. (currently amended)The system of claim 1, wherein the one or more polymers ~~are~~ comprise one or more high molecular weight, hydrophilic polymers.

18. (currently amended)The system of claim 1, wherein the one or more polymers ~~are~~ comprise one or more high molecular weight, resorbable polymers.

19. (currently amended)The system of claim 1, wherein the one or more polymers ~~are~~ comprise one or more hydrolytically and enzymatically degradable polymers.

20. (currently amended)The system of claim 1, wherein the one or more polymers ~~are selected from the group consisting of~~ comprise at least one of carboxy methyl cellulose, a polyorthoester, ~~pluronics~~ a pluronic polymer, and a lactide-glycolide co-polymer.

21. (original)The system of claim 1, wherein the one or more polymers comprise one or more of methyl cellulose and carboxy methyl cellulose.

22. (original)The system of claim 1, wherein the one or more polymers comprise pluronic F-127.

23. (currently amended)The system of claim 1, wherein the one or more ~~plant-derived~~, repellant chemicals comprise one or more alkaloids isolated from one or more members of the family Amaryllidaceae and the family Liliaceae.

24. (currently amended)The system of claim 1, wherein the one or more ~~plant-derived~~, repellant chemicals comprise one or more alkaloids isolated from one or more members of the genus Narcissus.

25. (currently amended)A method for protecting vegetation, said vegetation containing biopolymers, comprising:

treating the vegetation with a combination of one or more repellant chemicals and one or

more polymers,

wherein the one or more polymers comprise a pluronic polymer,

wherein the polymers and the repellent chemicals form a matrix with the biopolymers of the vegetation to permit sustained release of the chemicals.

26. (withdrawn)The method for protecting vegetation of claim 25, wherein the one or more repellent chemicals are in the form of a powder and the one or more polymers are in the form of a liquid, and wherein the treating the vegetation comprises successively depositing the repellent chemicals and the polymers.

27. (withdrawn)The method for protecting vegetation of claim 26, wherein the one or more polymers are deposited in the form of microdrops.

28. (currently amended)The method for protecting vegetation of claim 25, wherein the one or more polymers comprise a naturally occurring hydrophilic polymers polymer.

29. (currently amended)The method for protecting vegetation of claim 28, wherein the hydrophilic ~~polymers polymer~~ are selected from the group consisting is at least one of collagen, gelatin, dextrin ~~and or a polypeptides polypeptide.~~

30. (withdrawn)The method for protecting vegetation of claim 25, comprising releasing the one or more repellent chemicals under a controlled steady rate.

31. (withdrawn)The method for protecting vegetation of claim 30, wherein the releasing occurs without an initial burst effect.

32. (currently amended)The method for protecting vegetation of claim 25, further comprising controlling the adsorption and absorption kinetics of the transport of agrochemicals in and out of barrier surfaces of the vegetation plants ~~and providing protection to the vegetation.~~

33. (withdrawn)The method for protecting vegetation of claim 25, wherein the treating the vegetation comprises applying isobaric pressure in the range of about 100 to about 650 megapascals to the matrix.

34. (withdrawn)The method for protecting vegetation of claim 33, wherein the pressure is applied for a time period in the range of about one to about twenty minutes.

35. (withdrawn)The method for protecting vegetation of claim 33, wherein the pressure is applied at ambient temperature.

36. (withdrawn)A method for treating the anthropogenic hydrophobic organic contaminates that pollute agricultural soils and natural waters, comprising using the system of claim 1.

37. (currently amended)~~The~~ A method for providing disease and insect control to protect wounded plant tissue ~~and or~~ unwounded vegetation, including the outer skins, cuticular barriers and aerial surfaces of fruits, vegetables, seeds, and plants,-by employing the system of claim 1, wherein the vegetation is resistant to at least one of pathogenic microorganism's attack, parasitic attack, chemical attack, ~~and to~~ environmental stress, rotting, water loss, and insect invasion after employing the system, and wherein the vegetation comprises at least one biopolymer.

38. (currently amended)The method for providing disease and insect control of claim 37, wherein the plant vegetation includes comprises at least one of plant biopolymers, polymers, biopolyesters, biological solids and semi-solids, suberin, crosslinked aliphatic and aromatic suberin domains, esterified glycerol, lignin, waxes, cutan, cutin, cuticular membranes, organic matter fractions in the soil and bulk organic matter.

39. (currently amended)A method for microbially inactivating the bioburden of vegetation, said vegetation containing suberin, lignin, and cuticular layers of plants and seeds, comprising:

treating the vegetation with a combination of one or more repellent chemicals and one or more polymers to form a matrix with the vegetation; and

applying isobaric pressure in the range of about 196 to about 981 megapascals to the matrix, wherein the one or more polymers comprise a pluronic polymer.

40. (withdrawn)The method for microbially inactivating the bioburden of vegetation of claim 39, wherein the pressure is applied for a time period in the range of about 20 to about 120 minutes.

41. (withdrawn)The method for microbially inactivating the bioburden of vegetation of claim 39, wherein the pressure is applied at a temperature in the range of about ambient temperature to about 50°C.

42. (currently amended)A method for repelling animals from a surface, comprising:  
forming a complex of at least one repellant ~~chemicals~~ chemical, at least one biopolymer material, and one or more polymers;  
applying the complex to the surface; and  
releasing the ~~chemicals~~ at least one repellant chemical to repel animals from the applied surface,  
wherein the one or more polymers comprise a pluronic polymer.

43. (withdrawn)The method of claim 42, further comprising drying the complex after it is applied to the surface.

44. (currently amended)The method of claim 42, wherein the at least one repellant ~~chemicals~~ chemical ~~comprise~~ comprises an alkaloid.

45. (withdrawn)The method of claim 42, wherein the one or more polymers comprise carboxymethyl cellulose.

46. (currently amended)The method of claim 42, wherein the at least one biopolymer comprises at least one of suberin, cutin, wax, lignin, cutan, and fatty esters.

47. (withdrawn)The method of claim 42, wherein the surface is a non-tissue surface.
48. (withdrawn)The method of claim 42, wherein the surface is a polymeric plastic material.
49. (new)A system for treating plants containing biopolymers, comprising:  
    one or more repellant chemicals; and  
    one or more polymers, the polymers forming a matrix with the biopolymers and the repellant chemicals to permit sustained release of the repellant chemicals, wherein the one or more polymers comprise a pluronic polymer.
50. (new)The system of claim 49, wherein the one or more repellant chemicals comprise at least one of synthetic organic, inorganic, biochemical, pharmacological and toxicological substances.
51. (new)The system of claim 50, wherein at least one of the one or more repellant chemicals is derived from at least one of marine life, insect life, mammalian tissues, cellular life forms, or artificial and natural life forms.
52. (new)The system of claim 49, wherein the one or more repellant chemicals comprise at least one plant-derived material.
53. (new)The system of claim 49, wherein the one or more repellant chemicals are in the form of a powder and the one or more polymers are in the form of a liquid.
54. (new)The system of claim 49, wherein the one or more polymers comprise at least one naturally occurring hydrophilic polymer.
55. (new)The system of claim 54, wherein the hydrophilic polymer is collagen, gelatin, dextrin or a polypeptide.
56. (new)The system of claim 49, wherein at least one of the one or more polymers comprises a

charged ion, said charged ion forming an ionic complex with the one or more repellant chemical.

57. (new)The system of claim 56, wherein the charged ion is a silver ion.

58. (new)The system of claim 49, wherein the one or more polymers comprise at least one synthetic polymer.

59. (new)The system of claim 58, wherein the synthetic polymer is selected from the group consisting of self-assembled monolayers and water insoluble amphiphilic polycation molecules.

60. (new)The system of claim 49, wherein the one or more polymers comprise one or more of natural, water-soluble polymers or resins selected from the group consisting of gums, guar gums, xanthan gums, starches, dextrans, proteins, celluloses, polysaccharides, dextrans, carrageenan, agar, alginates, gelatin, casein, pectin, soy bean, lignites, tannins, deoxyribonucleic acid and animal derivatives.

61. (new)The system of claim 49, wherein the one or more polymers comprise one or more of synthetic, water-soluble polymers selected from the group consisting of polyvinyl alcohol, hydroxypropyl cellulose, maleic anhydride copolymers, polyacrylates, polyimines, polyethylene glycols, polyvinyl pyrrolidone, hydroxyethyl cellulose, hydroxypropylmethylcellulose, cellulose ethers, polyquaternary amines, modified polyesters, sodium carboxymethyl cellulose, hydrogels, acrylamide co-polymers, sorbitan esters and derivatives, polymeric surfactants, hydrocolloids, cationic polymers, anionic/nonionic polymers, and coagulating agents.

62. (new)The system of claim 49, wherein the one or more polymers comprise a bioerodible polymer.

63. (new)The system of claim 49, wherein the one or more polymers comprise an absorbable polymer.



64. (new)The system of claim 49, wherein the one or more polymers comprise a controlled release polymer.

65. (new)The system of claim 49, wherein the one or more polymers comprise a high molecular weight, hydrophilic polymer.

66. (new)The system of claim 49, wherein the one or more polymers comprise a high molecular weight, resorbable polymer.

67. (new)The system of claim 49, wherein the one or more polymers comprise one or more hydrolytically and enzymatically degradable polymers.

68. (new)The system of claim 49, wherein the one or more polymers comprise at least one of carboxy methyl cellulose, a polyorthoester, and a lactide-glycolide co-polymer.

69. (new)The system of claim 49, wherein the one or more polymers comprise one or more of methyl cellulose and carboxy methyl cellulose.

70. (new)The system of claim 49, wherein the one or more repellant chemicals comprise one or more alkaloids isolated from one or more members of the family Amaryllidaceae and the family Liliaceae.

71. (new)The system of claim 49, wherein the one or more repellant chemicals comprise one or more alkaloids isolated from one or more members of the genus Narcissus.

72. (new)The system of claim 49, wherein the pluronic polymer is pluronic F-127.